

WHAT IS CLAIMED IS:

1. An isolated and purified polynucleotide that encodes a mu opioid receptor polypeptide.
2. The isolated and purified polynucleotide of Claim 1, wherein said polynucleotide is a DNA molecule.
3. The DNA molecule of Claim 2, wherein said encoded polypeptide comprises the amino acid residue sequence of SEQ ID NO:2.
4. The isolated and purified polynucleotide of Claim 1, wherein said polynucleotide comprises the nucleotide base sequence of SEQ ID NO:1.
5. An isolated and purified polynucleotide that encodes a gene transcription regulatory polypeptide.
6. The DNA molecule of Claim 5, wherein said encoded polypeptide comprises the amino acid residue sequence of SEQ ID NO:4.
7. The isolated and purified polynucleotide of Claim 5, wherein said polynucleotide comprises the nucleotide base sequence of SEQ ID NO:3.
8. An isolated and purified polynucleotide comprising a base sequence that is identical or complementary to a segment of at least 10 contiguous bases of SEQ ID NO: 1 or SEQ ID NO: 3, wherein said polynucleotide hybridizes to a polynucleotide that encodes a mu opioid receptor polypeptide or a gene transcription regulatory polypeptide.
9. An isolated and purified mu opioid receptor polypeptide.

10. The opioid receptor polypeptide of Claim 9, wherein the polypeptide is a recombinant polypeptide.

11. The opioid receptor polypeptide of Claim 9 that comprises the amino acid residue sequence of SEQ ID NO:2.

12. An isolated and purified gene transcription regulatory polypeptide that comprises the amino acid residue sequence of SEQ ID NO:4.

13. An expression vector comprising a polynucleotide that encodes a mu opioid receptor polypeptide.

14. A recombinant host cell transfected with a polynucleotide that encodes a mu opioid receptor polypeptide.

15. A process of preparing a mu opioid receptor polypeptide comprising:

- (a) transfecting a cell with a polynucleotide that encodes said polypeptide to produce a transformed host cell; and
- (b) maintaining the transformed host cell under biological conditions sufficient for expression of the polypeptide.

16. An antibody immunoreactive with a mu opioid receptor polypeptide.

17. A process of detecting a mu opioid receptor polypeptide, wherein the process comprises:

- (a) immunoreacting said polypeptide with the antibody of Claim 16 to form an antibody-polypeptide conjugate; and
- (b) detecting the conjugate.

18. A process of screening a substance for its ability to interact with a mu opioid receptor, said process comprising the steps of:

- a) providing a mu opioid receptor polypeptide;
- b) testing the ability of said substance to interact with said opioid receptor.